

21 December 2015

Mr. Christos Tsiamis
United States Environmental Protection Agency
Region 2 Office
290 Broadway
New York, New York 10007

Re: 365 Bond Street Bulkhead Installation and Remedial Closure Report
365 Bond Street
Brooklyn, New York
USEPA Index No.: CERCLA-02-2014-2008
NYSDEC Site No. C224174
Langan Project No.: 100287501

Mr. Tsiamis:

This letter report summarizes the actions taken to replace the bulkhead along the Gowanus Canal adjacent to 365 Bond Street in Brooklyn, New York and the uplands remedial actions that were completed at the same address. This report documents the work that was completed in accordance with the requirements of the Consent on Order between the United States Environmental Protection Agency (USEPA) and LSG 365 Bond Street, LLC (Lightstone), executed by the Department of Justice on 19 August 2014 (hereafter referred to as the "Consent Order"). Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan) was retained by Lightstone to oversee environmental compliance considerations during installation of the new bulkhead.

Site Description

The site is located in the County of Kings, New York and is identified as Block 458 and Lot 1 on the New York City Tax Map #16C. The site is situated on an approximately 2.07-acre area bounded by First Street to the north, Second Street to the south, Gowanus Canal to the east, and Bond Street to the west. The boundaries of the site are fully described in Appendix A of the Final Engineering Report (FER), which is provided as Attachment A. The FER was approved by the New York State Department of Environmental Conservation (NYSDEC) on 6 November 2015. A Site Location Plan is provided as Figure 1 of the FER.

BULKHEAD INSTALLATION

Historical Background

The Gowanus Canal was first constructed in the 1850s by filling in the native tidal meadows, constructing vertical timber sheet piling for bulkheads, and excavating the canal to provide approximately five feet of draft for barges. The canal was modified into its current configuration by the Gowanus Canal Improvement Commission between 1866 and 1870. The commission reportedly constructed new bulkheads using stone-filled timber cribwork and dredged the canal to a depth of 12 ft below Mean Low Water in the area north of the Hamilton Street Bridge. The

properties along the Gowanus Canal have been historically used for commercial and industrial activity.

The stone-filled timber crib bulkheads were constructed of rough-hewn timbers forming a series of square or rectangular cells each with a floor. The timber cribs could be floated to their intended location and sunk into place by filling the cribs with stone. As the loaded cells sank, additional timber cells were added to the top and, in turn, also filled with stone. It is reported that these timber cribs were subject to decay above the mean tide level and these decayed timber sections would be replaced (typically every twelve to fifteen years). Within the Gowanus Canal, the decayed upper portions were often replaced by cast-in-place concrete caps.

The 365 Bond Street bulkhead cribbing system most likely began as Structure Type 1 (Timber Crib Bulkhead) and was converted to a Structure Type 2 (Timber Crib Bulkhead With Mass Concrete For Upper 3 To 5 Feet) subsequent to the original construction with fender piles system described in the *Gowanus Canal Preliminary Bulkhead Study, Brooklyn, Kings County, New York* by Douglas McVarish according to observations and the bulkhead study. It is also possible that a Structure Type 5 (Fender Piles along Bulkhead Face) with concrete was added at a later date when the use of the property changed. The bulkhead wall and timber cribbing on the 365 Bond Street portion of the Site had advanced decay throughout the bulkhead wall and cribbing. The bulkhead and cribbing in the area that was investigated was covered by concrete slabs at least three-feet thick that were most likely placed to convert the property into a parking area for tractor trailer trucks. The top of the timber bulkhead wall and cribbing was located under approximately a foot of soil under the concrete slab. The upper layer(s) of timber bulkhead wall and cribbing appeared to have been replaced at some point. In addition, concrete up to three feet thick was observed to the west of the bulkhead wall, suggesting that this cribbing was repaired and concrete placed on top of it. The conversion of the timber cribbing from Structure Type 1 to Structure Type 2 accounts for the more advanced decay observed in the round timbers below the square timbers. The irregularly spaced fender piles might have been added later to shore up the bulkhead wall and prevent collapse into the canal.

Proposed Environmental Remediation of the Canal

In March 2010 the Gowanus Canal was placed on the USEPA National Priorities List of hazardous waste sites. The USEPA conducted a remedial investigation of the canal and issued a draft Remedial Investigation Report in January 2011. The remedial investigation activities were conducted within the canal area off the site's bulkhead. Analytical results of samples collected during the investigation identified that surface water within the canal is contaminated with benzene, toluene, ethyl benzene and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAH) compounds and surface sediments were contaminated with BTEX, PAHs, polychlorinated biphenyls (PCBs), and heavy metals. In some locations, the contamination was found to extend into the underlying native soils that were present before the canal was first dredged. Sediment cores taken in the canal adjacent to the site found non-aqueous phase liquid (NAPL) throughout the approximate 10-foot thick soft sediments.

In December 2011, USEPA released a draft Feasibility Study examining potential methods for remediation. A proposed plan to clean-up the canal was released in December 2012 and the period for public comment ended in April 2013. A Record of Decision was issued in

September 2013. The proposed remedial actions include dredging the canal to a depth equivalent to approx., el -19.5 BHD and constructing a 3.5-foot thick cap/cover for the canal area adjacent to the 365 Bond Street bulkhead. The USEPA remediation plan envisioned installing sheet piles along the full length of the canal to accommodate the proposed dredging activity.

Summary of Work Performed

Soil Solutions, Inc. (Soil Solutions), of West Hempstead, New York, was responsible for the design and construction of the new bulkhead at the 365 Bond Street site to prevent collapse of the existing bulkhead wall during redevelopment activities and accommodate future dredging activity proposed by the USEPA in the Gowanus Canal. The following summarizes the work performed on site to remove debris from the canal and construct a new bulkhead as required by the Consent Order. The removals and construction work was completed for Lightstone by Lettire Construction Corporation (Lettire) and Soil Solutions. All work was completed with environmental oversight by Langan. Daily reports were provided to USEPA while construction activity was on-going. The remediation of the site was also completed under New York State Department of Environmental Conservation's Brownfield Cleanup program and this work was documented in the Final Engineering Report dated September 2015. The FER is provided as Attachment A of this report. An as-built drawing and photographic documentation of the bulkhead installation are provided in Appendix O of the Interim Remedial Measures Construction Completion Report (IRM CCR) which is provided as Appendix B of the Final Engineer Report (FER). The remedial work completed at the site was conducted in accordance with the following:

- 1) The Order on Consent for A Removal Action, between Lightstone and USEPA Region II, Index Number CERCLA-02-2014-2008 (referred to herein as the Consent Order);
- 2) The Bulkhead Work Plan for Lightstone, prepared by Langan, dated 16 May 2014, as approved by USEPA; and,
- 3) The Bulkhead Work Plan Addendum for Lightstone, prepared by Langan, dated 10 September 2014, as approved by USEPA.

Soil Erosion and Sediment Control Measures

- 1) Lightstone installed a turbidity curtain in the Gowanus Canal adjacent to the 365 Bond Street site on 28 January 2015 prior to the commencement of bulkhead construction of the bulkhead at 365 Bond Street.
- 2) Turbidity readings were taken by Langan prior to the commencement of bulkhead construction as described below:
 - a. The baseline turbidity readings were taken by Langan on 29 January 2015 prior to the commencement of bulkhead installation activities on the adjacent 365 Bond Street property.

- b. Turbidity readings were taken with a portable turbidity meter meeting the requirements of USEPA 180.1 and the International Organization for Standardization (ISO) 7027. The meter was capable of measuring turbidity in the range of 0.05 to 4,000 Nephelometric Turbidity Units (NTU). The unit was calibrated in accordance with manufacturer's recommendations.
 - c. Readings were taken every 40-feet along the alignment of the turbidity curtain, both 2-feet inside and 5-feet outside the curtain. At each location, turbidity readings were taken at depths of 6- and 18-inches below the top of surface water.
 - d. All turbidity readings taken from the interior of the turbidity curtain were determined to be less than 10% above the background readings in accordance with the Bulkhead Work Plan.
 - e. Turbidity readings were provided in the daily reports which were submitted while bulkhead construction and site redevelopment were actively ongoing.
- 3) Soil Solutions maintained the turbidity curtain for the duration of construction. The turbidity curtain was left in place after completion of bulkhead construction while site redevelopment continued.
- a. During obstruction removal and on occasion during sheet pile installation, suspended solids were visible in the water within the turbidity curtain. The turbidity curtain was effective in retaining the suspended solids.
 - b. The turbidity curtain remains in place at the site. A post-construction turbidity reading will be collected prior to the removal of the turbidity curtain from the canal. The turbidity curtain will be tested after removal from the canal in accordance with the Bulkhead Work Plan Quality Assurance Project Plan (QAPP) prior to disposal.
- 4) A silt fence and/or hay bales were installed by Lettire along the site perimeter parallel to the Gowanus Canal prior to the commencement of bulkhead construction. Soil Solutions continued to maintain and relocate the silt fence and/or hay bales as necessary for the duration of work to provide proper erosion protection and prevent soils from migrating off site.
- 5) Soil erosion and sediment control measures were inspected weekly and after major storm events during construction by a SPEDS inspector from Langan.

Sheet Pile Wall Installation

- 1) Control points were established by Soil Solutions. The control points were used to layout the remainder of the work.
- 2) Soil Solutions constructed a temporary template along the proposed bulkhead alignment to ensure proper layout of the sheet piles during installation. The template consisted of multiple steel beams supported on steel H-Piles driven into the mudline. The steel beams were removed after the sheet piles were installed. The H-piles were used as a fendering

system during construction and were removed after sheets were driven. All components of the template were decontaminated using a pressure washer in accordance with the requirements of the Bulkhead Workplan and removed from the site.

- 3) Steel sheet piling were delivered by truck and stored inshore of the bulkhead prior to installation. Steel sheet piles were coated with Carboline Bitumastic 300M epoxy coating.
- 4) The following sheet piles were driven to the required depth by a land-based crane with a vibratory hammer:
 - Twelve 35-foot long double AZ38-700N sheet piles to elevation -39.25 Brooklyn Highway Datum (BHD);
 - Four 40-foot long double AZ19-700 sheet piles to elevation -37.11 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -36.85 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -36.59 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -36.05 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -35.5 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -34.95 BHD;
 - Two 40-foot long double AZ19-700 sheet piles to elevation -34.44 BHD;
 - Thirty 40-foot long double AZ19-700 sheet piles to elevation -34.08 BHD;
 - One 40-foot long double AZ19-700 sheet pile and one 40-foot long double AZ19-700 corner sheet pile to elevation -33.92 BHD; and,
 - Five and a half 25-foot long double XZ-85 sheet piles, including one bent corner sheet, to elevation -22.31 BHD adjacent to the NYC DEP Sponge Park and inland of 365 Bond Street property.
- 5) Holes were cut through the steel sheeting at soil anchor locations using an acetylene torch. Steel cuttings were prevented from falling into the canal.
- 6) The tie rods were installed in excavated trenches. The tie-rods were galvanized and wrapped with a corrosion-protective tape along their entire lengths. All excavated materials were reused on-site.
- 7) A minimal amount of work was performed from timber work stages placed in the Gowanus Canal and tied off to the existing crib structure. The work stage remains in place for continued construction of the site.
- 8) In certain locations where obstructions were encountered that prevented the installation of the sheeting, limited probing and obstruction removal was completed.

- 9) Approximately 663 tons of manufactured sand was imported to the site from the Mt. Hope Quarry in New Jersey via Tilcon New York, Inc. to backfill between the existing ground surface and the installed bulkhead sheet piling. This volume of material accounts for the backfill used at both the 365 and 363 Bond Street sites. Imported material documentation is provided in Appendix J of the IRM CCR (Appendix B of the FER provided as Attachment A).

Demolition and Removals

- 1) Debris removed from the canal during installation of the bulkhead consisted of timber cribbing as well as obstructions encountered, including metal debris, tires, and crushed concrete, which were removed and disposed off-site in the following manner by MFM Contracting Corporation and Soil Solutions:
 - a. Timber cribbing was removed from the canal in October 2015. Each timber was lifted out of the canal, placed on polyethylene sheeting that was sloped to drain into the Canal, and cleaned of sediment with a high pressure water spray. All runoff and wash water was retained within the turbidity curtain.
 - b. During installation, from February through March 2015, several obstructions were encountered, including metal debris, tires, and crushed concrete. Each obstruction was lifted out of the canal, placed on polyethylene sheeting that was sloped to drain into the Canal, and cleaned of sediment with a high pressure water spray. All runoff and wash water was retained within the turbidity curtain.
 - c. After cleaning, the timbers and obstructions were stockpiled on polyethylene sheeting onsite. Timbers previously removed from the canal had been sampled and tested in accordance with our approved QAPP as documented in the December 2015 363 Bond Street Closure Report. Sampling was completed by PAL Environmental Services of Long Island City, New York, on 20 April 2015. Analytical testing was completed by American Analytical Laboratories of Farmingdale, New York. Copies of the analytical testing results are provided in Attachment B. No testing of the obstructions were conducted; however, the items were evaluated by an archaeologist, as discussed below.
 - d. Stockpiles of timber and obstructions within the staging areas were covered with plastic sheeting until the material was disposed.
 - e. The timber piles were classified as being non-hazardous and were disposed of at Conestoga Landfill of Morgantown, in Berks County, Pennsylvania. Permit from Pennsylvania Department of Environmental Protection (PADEP) and manifests for disposal of the timbers are provided as Attachment C.
 - f. The crushed concrete and tire obstructions were classified as being non-hazardous and were disposed of at Alloco Recycling LTD, in Brooklyn, New York. Manifests for disposal of the crushed concrete and tires are provided as Attachment C.

- g. The metal obstructions were classified as being non-hazardous and were disposed of at 6th Street Iron & Metal, in Brooklyn, New York. Manifests for disposal of the metal obstructions are provided as Attachment C.
- h. Upon completion of the removals, all equipment was decontaminated as described below.

Archeological Field Documentation

- 1) During the installation of the bulkhead wall at 365 Bond Street, obstructions were encountered and removed from the Gowanus Canal and placed in polyethylene-lined roll-off containers. The debris was then decontaminated in conformance with the requirements of applicable USEPA and NYSDEC regulations and the Bulkhead Workplan. On 24 April 2015, a professional archaeologist reviewed the decontaminated debris to determine if the debris was of any archeological significance. The debris consisted of an automobile frame, engine parts, metal rebar, remnants of a shopping cart, two partial bicycle wheels, tires, a portion of chain link fence, plastic conduit pipes, metal fence posts, a car wheel rim, a hub cap, and unidentifiable machine parts. The archeological inspection determined that all of the identifiable items were from the mid- to late-20th-century. The results of the archaeological evaluation were documented in the 5 May 2015 Evaluation of Metal Debris from Canal memorandum. As stated in this memorandum, none of the debris observed retained any archaeological or historic significance or research value. The metal debris and tires, along with crushed concrete that was removed adjacent to the bulkhead wall at Second Street, were disposed off-site on 19 May 2015.
- 2) The cribbing timbers that were removed were included in the archaeological documentation submitted to USEPA in Langan's April 2013 Gowanus Canal Bulkhead and Cribbing report and therefore, required no further evaluation.

Decontamination & Close Out

- 1) Timber cribbing and obstructions removed from the Gowanus Canal were decontaminated prior to removal from the site in conformance to the requirements of applicable USEPA and NYSDEC regulations and the Bulkhead Workplan.
- 2) All timber cribbing removed from the canal were cleaned of sediment with a high pressure water spray. All runoff and wash water was retained within the turbidity curtain.
- 3) An as-built survey was completed by Soil Solutions. A copy of the as-built survey and photographic documentation of the bulkhead installation is provided as Appendix O of the IRM CCR (Appendix B of the FER provided as Attachment A).
- 4) Periodic inspection and certification of the bulkhead will be completed in accordance with the Bulkhead Management Plan which is provided as Attachment D.

REMEDIAL ACTION COMPLETED

Historical Background

The site at 365 Bond Street has an extensive industrial and manufacturing history which dates back over 100 years. Multiple Phase I Environmental Site Assessments (ESAs) were completed at the site between 2001 and 2012 resulting in the completion of environmental investigations. Based on a review of historic Sanborn Fire Insurance Maps conducted as part of the Phase I ESAs, historical uses of the site have included an oil terminal with large above ground storage tanks, a building materials warehouse, a lumber company, paper products warehouse, an electric wire and cable company, a warehouse, a dry cleaner, a garage and an automotive repair shop with two 550-gallon underground gasoline tanks.

The former building was most recently used for office and warehouse space and the eastern portion of the lot was most recently used for the storage of tractor trailers and firewood. The former buildings were demolished in preparation for site redevelopment.

The NYSDEC Remedial Investigation completed for the site in 2013, USEPA Bulkhead Investigation completed in January 2014, and the USEPA Supplemental Remedial Investigation completed in April 2014 determined that elevated concentrations of semi-volatile organic compounds (SVOCs) and metals and the presence of petroleum impacts existed on-site above the site wide clay layer encountered at depths ranging from 7- to 17-feet below grade. The majority of the elevated concentrations of SVOCs and metals have been associated with the presence of historic fill across the site; however, there are also portions of the site where the concentrations of SVOCs were higher than those typically associated with historic urban fill. Petroleum impacts, which include the presence of LNAPL and elevated concentrations of polycyclic aromatic hydrocarbons (PAHs), have been associated with the historic use of the site as an oil terminal. The presence of LNAPL or anomalously high concentrations of SVOCs were used to determine the extent of the remedial areas.

Groundwater was also identified as being impacted with elevated VOCs and SVOCs associated with gasoline and petroleum. These impacts were identified as being related to the historic use of the site as described above.

The results of the NYSDEC Remedial Investigation were documented in the September 2014 Remedial Investigation Report, the results of the USEPA Bulkhead Investigation were submitted in a memorandum dated 25 February 2014, and the results of the USEPA Supplemental Remedial Investigation were submitted in a letter dated 25 April 2014.

Remedial Action Objectives

Based on the investigations completed at the site, the following Remedial Action Objectives were identified:

- 1) Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards;
- 2) Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater;

- 3) Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions;
- 4) Prevent the discharge of contaminants to surface water;
- 5) Prevent ingestion/direct contact with contaminated soil;
- 6) Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil;
- 7) Prevent migration of contaminants that would result in groundwater or surface water contamination; and,
- 8) Mitigate impacts to public health resulting from the potential for soil vapor intrusion into the building at the site.

Summary of Work Performed

The site was remediated in accordance with the approved work plans identified in Sections 3.1 and 4.0 of the 365 Bond Street Final Engineering Report (provided as Attachment A). Each of the remedial actions described below is discussed in detail in the FER and/or Interim Remedial Measures Construction Completion Report (IRM CCR) (Appendix of B of the FER provided as Attachment A).

Removal of Contaminated Material

- 1) Pre-excavation soil samples were collected and analyzed for waste characterization for all exported soils generated from the proposed redevelopment activities. The pre-excavation soil sampling activities are summarized in Section 3.4.1 of the IRM CCR (Appendix B of the FER), waste characterization laboratory packages are provided in Appendix D of the IRM CCR, and waste disposal permits and approvals are provided in Appendix F of the IRM CCR.
- 2) Storm-water pollution prevention measures were implemented in compliance with applicable laws and regulations as detailed in Section 3.2.4 of the IRM CCR (Appendix B of the FER).
- 3) A Community Air Monitoring Plan (CAMP) was implemented and perimeter and work zone air monitoring for volatile organic compounds (VOCs) and particulates emissions during remediation. A description of the CAMP and the results are summarized in Sections 3.2.5, 3.3.4.2, and 3.3.5 of the IRM CCR (Appendix B of the FER) and the CAMP data is provided in Appendix C of the IRM CCR.
- 4) All activities required for the remedial actions were performed in compliance with applicable laws and regulations including permitting requirements.
- 5) Two hotspot areas of concern (AOC-4 and Supplemental AOC-4) characterized by the presence of petroleum-related VOCs and SVOCs were excavated for offsite disposal in accordance with the IRM Workplan (WP) and AOC-4 Excavation Workplan (EWP). In addition, soil impacted by residual petroleum contamination that resulted in localized area of

non-aqueous phase liquid (LNAPL) was identified and removed during excavation activities. Soil excavation and disposal is summarized in Section 3.4.2 of the IRM CCR (Appendix B of the FER) and the location of excavated areas is provided on Figure 2 of the IRM CCR. Soil disposal manifests and weight tickets are provided in Appendix F of the IRM CCR and a volume summary of soil disposal is provided in Table 1 of the IRM CCR. Photographic documentation of the completion of remedial excavations is provided as Appendix G of the IRM CCR.

- 6) Additional areas impacted by LNAPL and anomalously high concentrations of semi-volatile organic compounds (SVOCs) as identified during the Supplemental Remedial Investigation (SRI) were excavated for offsite disposal in accordance with the Comprehensive Supplemental Remedial Measures Plan (CSRMP) (AOC-7, EPA-3, EPA-4, B-3, B-4, LSB-18, and LSB-19). Soil excavation and disposal is summarized in Section 3.4.2 of the IRM CCR (Appendix B of the FER) and the location of excavated areas is provided on Figure 2 of the IRM CCR. Soil disposal manifests and weight tickets are provided in Appendix F of the IRM CCR and a volume summary of soil disposal is provided in Table 1 of the IRM CCR. Photographic documentation of the completion of remedial excavations is provided as Appendix G of the IRM CCR.
- 7) Post-excavation soil samples for all remedial excavation areas were collected and analyzed as summarized in Section 3.4.4 of the IRM CCR (Appendix B of the FER). Post-excavation soil sample laboratory packages and data usability reports (DUSRs) are provided in Appendices I and H, respectively, of the IRM CCR. Post-excavation soil sample analytical results are summarized in Tables 2A through 2J and on Figure 5 of the IRM CCR.
- 8) Excavation and offsite disposal of soils encountered that were saturated with free phase petroleum (within the vadose zone);
- 9) Seven underground storage tanks (USTs) discovered during excavation associated with the site redevelopment were decommissioned in accordance with all applicable federal, state and local regulations as detailed in Section 3.4.3 of the IRM CCR (Appendix B of the FER). Former UST locations are shown on Figure 2 of the FER and tank closure documentation is provided as Appendix D of the Remedial Action Work Plan (RAWP).
- 10) Remedial excavation areas were backfilled to development grade with recycled concrete aggregate (RCA) and NYSDEC Item #4 (sandy gravel) in accordance with NYSDEC requirements as summarized in Section 3.4.5 of the IRM CCR (Appendix B of the FER). Backfill import sample laboratory packages and data usability reports (DUSRs) are provided in Appendices L and K, respectively, of the IRM CCR. Backfill import documentation is provided as Appendix J of the IRM CCR and a volume summary of imported materials is provided in Table 5 of the IRM CCR.

Site Cover

- 1) A composite cover system was constructed consisting of building foundations, sidewalks, paved walkways, and a temporary (prior to completion of the waterfront esplanade) soil cover to prevent human exposure to remaining contaminated soil/fill at the site as

summarized in Section 4.1.1 of the FER and Section 3.5 of the IRM CCR (Appendix B of the FER). A site survey and composite cover system as-built drawings are provided in Appendix M of the IRM CCR (Appendix B of the FER) and photographic documentation of the construction of the composite cover system is provided as Appendix N of the IRM CCR (Appendix B of the FER). A cover system map is provided as Figure 7 of the IRM CCR (Appendix B of the FER).

- 2) Construction of a steel sheet-pile bulkhead wall outboard of the existing bulkhead to stabilize the existing bulkhead, act as a retaining structure of the composite cover system, and define the eastern edge of this system on the Gowanus Canal as detailed above; and,
- 3) A waterfront esplanade was constructed consisting of a minimum two-foot temporary clean soil cover system with an underlying demarcation layer within the landscaped areas and asphalt or concrete paved public areas and/or walkways (completed in accordance with the NYSDEC Site Management Plan (SMP) during final construction activities) as summarized in Section 3.5 of the IRM CCR (Appendix B of the FER). Backfill import documentation is provided as Appendix L of the IRM CCR and a volume summary of imported materials is provided in Table 5 of the IRM CCR. Laboratory analytical packages and the DUSRs for the imported material for construction of the temporary soil cover system are provided in Appendices L and K, respectively, of the IRM CCR. Backfill analytical results are provided as Table 7 of the IRM CCR and a cover system map is provided as Figure 7 of the IRM CCR.

Vapor Mitigation

- 1) A sub-membrane piping network for a passive sub-slab depressurization system (SSDS) was installed beneath the at sidewalk-grade level of the new building as summarized in Section 3.7 of the IRM CCR (Appendix B of the FER). As-built drawings and photographic documentation of the construction of the sub-membrane piping network is provided in Appendix P of the IRM CCR.
- 2) A Grace Preprufe® 300R and Bituthene® 3000 waterproofing/vapor barrier system was installed beneath the subgrade parking area foundation, and a 15-mil Stego Wrap Vapor Barrier vapor barrier system was installed beneath the at sidewalk-grade level building foundations as summarized in Section 3.7 of the IRM CCR (Appendix B of the FER). Specifications and the warranty for the vapor barrier are provided in Appendix Q of the IRM CCR.
- 3) Construction of six vertical cast iron risers to vent the SSDS to the roof will be completed as part of the SMP during completion of construction as summarized in 2.2.1.2 of the SMP.

Utilities

- 1) Stormwater and sanitary sewer within both buildings have been separated, with separate connections to the NYC sewer system in accordance with NYC Department of Environmental Protection (NYCDEP) and USEPA approvals. Storm drainage from the project site will be connected to the new storm sewer in 1st Street and new outfall to the Gowanus Canal that

was approved to accept flow by NYCDEP on November 20, 2015. Installation of the oil/water separators has commenced and the connections are currently being finalized.

Institutional Controls

- 1) Execution and recording of an Environmental Easement with NYSDEC to restrict land use and prevent future exposure to any contamination remaining at the site as summarized in Section 4.2 of the FER.

Site Management Plan

- 1) A Site Management Plan was developed for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting. The Site Management Plan is provided as Appendix C of the FER.
- 2) Periodic inspection and certification of the institutional and engineering controls, including site wide inspections, inspections of the soil cover system, and inspections of the passive SSDS at the frequency identified in the SMP as summarized in Sections 2.4.1 and 5.1 of the SMP. Inspection and monitoring checklists are provided as Appendix I of the SMP.
- 3) The passive SSDS will be continuously operated and maintained at the frequency identified in the SMP as summarized in Sections 4.2.2.2 and 4.2.2.3 of the SMP.
- 4) Sub-slab soil vapor and ambient air samples will be periodically collected at the frequency identified in the SMP as detailed in Sections 3.3.1, 3.3.1.1, and 4.3.3 of the SMP.
- 5) Reporting will be completed in accordance with the SMP as summarized in Section 4.4, 5.1.2, 5.1.3, and 5.3 of the SMP.

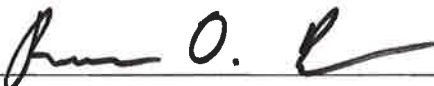
Presentation of Expenses Incurred

Costs incurred by Lightstone as of 18 December 2015 to complete this project are summarized below.

Company	Tasks Performed	Amount
Oracle	Soil Disposal	\$863,964
Kingdom	Excavation/Backfill/Cap Construction	\$7,180,630
AWT	Remedial System (SSDS) Construction	\$150,000
Soil Solutions	Bulkhead Construction	\$1,674,750
Lettire	General Contractor Insurance, Fees, etc.	\$1,776,482
TOTAL:		\$11,645,826


CERTIFICATION

I certify that the information contained in and accompanying this document is true, accurate, and complete.



Ronald D. Boyer
NY Professional Engineer License No. 085831-1
Principal / Vice President





Steven A. Ciambuschini, Q.E.P.
Principal / Vice President

SAC:kn

Enclosure(s): Attachment A – 365 Bond Street Final Engineering Report
Attachment B – Obstruction Laboratory Analytical Packages
Attachment C – Obstruction Disposal Documentation
Attachment D – Bulkhead Management Plan